the discussion of the question "What are the Most Vital and Essential Forms of Child Welfare Work?"

The writer brings away from this conference the general impression that the English-speaking people are deeply impressed with the necessity and importance of conserving maternal and infant life. The papers read at this conference showed a keen insight into the problems of maternal and child hygiene. The writer was also impressed by the fact that a number of the papers gave evidence that the British Government is much more liberal with appropriations for child health work than is the case in our own country, and that the coordination of the activities of volunteer associations with those of the official agencies is much closer than is generally the case with us. Finally, it must be noted the conference made clear that, fundamentally, the solution of the problems of child hygiene in other English-speaking countries is the same as in America. The essential principles of child and maternal health conservation are equally well understood by all, but the practical application of this knowledge can never be wholly the same in England as in the United States, due to the necessity of different angles of approach. However, the calling into conference of representatives from far-distant countries for the purpose of exchanging views can not help but be fruitful of good results. The earnest men and women responsible for the organization and conduct of the conference deserve the heartfelt thanks of those who are interested in the welfare of the future men and women of their respective countries.

COOPERATIVE RURAL HEALTH WORK OF THE PUBLIC HEALTH SERVICE IN THE FISCAL YEAR 1921.

By L. L. LUMSDEN, Surgeon, United States Public Health Service.

The results of the cooperative rural health work of the Public Health Service in the fiscal year ending June 30, 1921, gave further support to the conclusion [1] presented in the report on this activity for the fiscal year 1920.

The estimate of appropriation approved by the Bureau of the Public Health Service and the Treasury Department and submitted to Congress "for special studies of and demonstration work in rural sanitation" in the fiscal year 1921 was $500,000. Congress granted $50,000. In view of (1) the definitely determined [2] need of sanitary improvements in our rural districts, (2) the lack of local health service approaching adequacy in our rural counties and towns generally, (3) the vital importance from local, State, and national standpoints of having promoted the interests of our food-producing rural

[1] Page 15 of Reprint No. 615 from Public Health Reports, Oct. 1, 1920.
[2] Public Health Bulletin No. 94, pp. 39-44.

sections, (4) the interrelation of rural to urban health, and (5) the demonstrated effectiveness of the plan of rural sanitation work of the Public Health Service to stimulate the development and maintenance of well-balanced, economical local health service, it seemed unfortunate that the appropriation made available was less than 10 per cent of the amount necessary to enable the Federal Government to accept opportunities presenting at the beginning of the fiscal year through offers from State and local authorities to enter into cooperation in due and reasonable proportion to develop demonstration projects in rural health work. Had the amount estimated, viz, $500,000, been made available, the demonstration work could have been carried out on a sufficient scale to make a definite impression upon the general situation, and the eventual results in the promotion of rural health work, with the saving of lives and the prevention of costly sickness among the people of the United States, would have been more than tenfold those which were obtainable from the small investment made possible by the appropriation granted.

On July 1, 1920, $997.42 unexpended under previous contracts remained available. This amount, with the $50,000 appropriated, made $50,997.42 available for the cooperative rural health work of the Public Health Service in the fiscal year 1921. Of this sum, $31,460.82 was expended under allotments for cooperative projects in counties, and $5,874.45 was expended for administration, supervision of projects, and studies of the problem of rural sanitation.[3]

During the fiscal year, cooperative projects were carried out in 38 counties in 15 States. The total expenditures for the support of the local projects was $292,063.59. Of this sum, $217,768.39 was provided from municipal, county, and State governmental sources, $42,834.38 from civic sources, such as local health associations, Red Cross chapters, and the International Health Board, and $31,460.82 from the rural sanitation funds of the Public Health Service. Thus the investment of Federal funds was covered with odds of over 8 to 1 for the support of the work. The proportion of the expenses met with funds from local sources is significant. It gives some idea of the stimulating effect of the Federal cooperation and suggests what might be accomplished in this vitally important national field if Congress would grant sufficient appropriations to enable the Federal Government to go into the cooperative rural health business on a reasonably adequate scale.

The amounts of money expended from the different sources for the support of the projects and the scope and the results of the work are presented in the accompanying tabular statement.

[3] The unexpended balance of the total sum available was included in allotments made during the fiscal year for the support of some of the local cooperative projects which, because of various local circumstances, could not be completed by the end of the fiscal year.

Compilation of data, by counties, on cooperative demonstration work in rural sanitation in the fiscal year 1921.

Counties (or districts)	Arlington, Va.	Cape Cod Health District, Mass.	Cascade, Mont.	Chaves, N. Mex.	Cherokee, Kans.	Clarke, Ga.	Cumberland, N. C.	Dubuque, Iowa.	Edgecombe, N. C.	Eighth Sanitary District of Vermont.
Period of work in fiscal year 1921	July 1, 1920, to June 30, 1921.	May 1 to June 30, 1921.	Aug. 16, 1920, to June 30, 1921.	June 1 to June 30, 1921.	July 1, 1920, to June 30, 1921.	Dec. 1, 1920, to June 30, 1921.	July 1, 1920, to June 30, 1921.	May 1 to June 30, 1921.	July 1, 1920, to June 30, 1921.	Aug. 1, 1920, to June 30, 1921.
Expenditures:										
(*a*) Rural sanitation fund (P. H. S.)	$300.00	$312.50	$3,500.39	$150.00	$909.81	$1,258.29	$963.29	$50.00	$962.46	$2,310.00
(*b*) State	1,793.24						999.98		1,582.72	3,269.64
(*c*) County	10,483.00	669.67	8,154.44	420.46	6,142.16	3,375.45	6,626.13	1,294.84	1,850.46	
(*d*) Municipalities			8,154.44			501.99		1,505.84		
(*e*) Other agencies	928.00		2,400.00	325.00	1,200.00	748.50	1,000.01		800.00	
Total	13,504.24	982.17	22,209.27	895.46	8,251.97	5,884.23	9,589.41	2,850.68	5,195.64	5,579.64
Number of lectures	26	2	39	5	150	112	94	9	66	45
Attendance at lectures	1,285	75	1,422	290	9,918	5,230	6,640	799	3,727	1,731
Pieces of literature distributed	6,717		28,944	63	9,262	792	10,410		2,975	4,382
Sanitary inspections:										
(1) Private homes	2,420	3	93	868	1,316	4,307	4,012	616	3,376	25
(2) Schools	109	6	1		158	118	73	51	28	182
(3) Churches	94		6			3				
(4) Stores, markets, etc	414		565		530	47	2,161	510	1,060	257
Total	3,037	9	665	868	2,004	4,475	6,246	1,177	4,464	464
Special inspections:										
Food product places	212	302	110	75	633	1	1,550	262	862	168
Physical examination of school children:										
(1) Number examined		90	1,404		6,901	1,380	1,272	1,903	664	5,199
(2) Number found defective		78	1,082		4,622	1,133	763	836	258	4,353
Number of treatments induced for correction of physical defects in school children	2,614			10	56			63		242
Public-health nursing:										
(1) Number of visits to cases of communicable diseases	147		735	291	37		1,848		573	24
(2) Number of talks given to groups of persons	98		43	2	45		75	81	142	337
(3) Number of visits to give prenatal care			24	2	70		572	35	167	12
(4) Number of visits to explain and demonstrate infant hygiene			697	100	174		823	295	1,067	60

Laboratory examinations:										
Positive	312	2	151	.....	142	43	200	152	131	266
Negative	1,789	100	773	.....	91	42	586	303	197	2,864
Total	2,101	102	924	.....	233	85	786	455	328	3,130
Immunization:										
(1) Number of complete antityphoid inoculations	3	.....	32	.....	2,189	266	737	.....	2,339	.....
(2) Number of complete antismallpox inoculations	73	.....	461	.....	.....	1,618	2,401	.....	2,670	.....
(3) Number of complete antipneumonia inoculations	8	.....	.....	.....	.....	.....	.....	.....	.....	.....
Antimalaria work	(1)	(1)	(1)	(1)	(1)	(1)	(2)	(1)	(2)	.....
Number of persons treated for removal of hookworm infection	58	.....	.....	.....	.....	.....	23	.....	12	.....
Venereal disease prevention:										
(1) Number of prophylactic treatments	.....	.....	.....	.....	.....	.....	.....	.....	.....	75
(2) Number of curative treatments	.....	.....	215	7	.....	.....	1,652	77	.....	.....
Number of visits by health officer or his assistant:										
(1) To diagnose suspected cases infectious disease	49	.....	1,758	9	45	22	210	52	36	47
(2) To impose quarantine measures	372	.....	2,348	32	13	36	504	63	577	18
Number of cases quarantined	454	67	2,261	40	307	44	602	60	635	186
Sanitary privies installed:										
L. R. S	.....	.....	.....	.....	7	28	90	.....	.....	.....
Concrete vaults	.....	.....	.....	.....	165	.....	72	1	.....	11
Bucket and box	719	.....	.....	.....	59	400	17	.....	59	.....
Pits	.....	.....	.....	5	643	53	350	.....	502	11
Total	719	.....	.....	5	874	481	529	1	561	22
Septic tanks installed	89	.....	.....	.....	.....	.....	18	.....	.....	.....
Number of privies repaired so as again to be of sanitary construction	.....	.....	155	56	366	.....	35	44	18	.....
Number of new sewer connections	.....	.....	92	.....	189	20	15	67	.....	.....
Number of new water connections	.....	.....	83	.....	189	42	12	54	.....	.....
Number of wells improved	51	.....	.....	.....	103	.....	6	4	.....	.....
Number of springs improved	.....	.....	.....	.....	.....	.....	2	.....	.....	22
Number of public milk supplies radically improved	17	.....	.....	.....	35	.....	24	48	.....	.....
Number of life extension examinations	.....	.....	64	.....	.....	.....	34	.....	32	.....

[1] None. [2] Considerable. [3] Little.

Compilation of data, by counties, on cooperative demonstration work in rural sanitation in the fiscal year 1921—Continued.

Counties (or districts)	Fauquier, Va.	Glynn, Ga.	Greene, Mo.	Hamilton, Tenn.	Harrison, Miss.	Henry, Va.	Jasper, Mo.	Lauderdale, Ala.	Madison, Ala.	Mason, Ky.
Period of work in fiscal year 1921	Oct. 1, 1920, to June 30, 1921.	Aug. 1, 1920, to June 30, 1921.	July 1, 1920, to June 30, 1921.	July 1 to Sept. 15, 1920.	July 1, 1920, to June 30, 1921.	Aug. 1, 1920, to June 15, 1921.	July 1, 1920, to June 30, 1921.	July 1, 1920, to June 30, 1921.	July 1, 1920, to June 30, 1921.	July 1, 1920, to June 30, 1921.
Expenditures:										
(*a*) Rural sanitation fund (P. H. S.)	$225.00	$275.00	$909.81	$762.50	$1,200.00	$262.50	$909.81	$1,173.33	$2,274.17	$1,788.34
(*b*) State	2,237.96					4,034.85		575.00		1,381.28
(*c*) County	3,461.12	10,419.18	600.00	5,271.67	8,907.18	4,034.85	2,476.27	3,041.00	6,709.55	2,002.75
(*d*) Municipalities		6,348.89							2,874.96	
(*e*) Other agencies	1,564.94		10,461.65		1,078.81	825.00	8,302.60	3,527.76	2,035.02	1,164.03
Total	7,489.02	17,043.07	11,971.46	6,034.17	11,185.99	9,157.20	11,688.68	8,317.09	13,893.70	6,336.40
Number of lectures	33	31	401		190	23	40	55	24	103
Attendance at lectures	2,995	1,470	12,974		14,649	1,628	4,995	3,170	3,910	3,316
Pieces of literature distributed	18,066	1,093	41,229		8,689	6,001	4,655	3,175	1,780	4,464
Sanitary inspections:										
(1) Private homes	1,190	7,690	48	3,300	5,496	1,069	1,601	4,578	10,243	417
(2) Schools	81	13	191	8	82	65	65	104	52	86
(3) Churches	4		5	6	13			26		
(4) Stores, markets, etc	116	1,936	190	130	1,965		347	7,249	80	14
Total	1,391	9,639	434	3,444	7,556	1,134	2,013	11,957	10,375	517
Special inspections:										
Food product places	67	558	28	10	78		169	283	454	3
Physical examination of school children:										
(1) Number examined	2,723	1,913	3,572		2,831	2,283	5,395	3,664	4,305	3,363
(2) Number found defective	1,803	972	2,881		1,896	1,288	4,656	2,711	2,306	1,212
Number of treatments induced for correction of physical defects in school children	656	76	1,438				424	11	30	167
Public-health nursing:										
(1) Number of visits to cases of communicable diseases	24	289	262		47	987	783	50	171	701
(2) Number of talks given to groups of persons	106	14	81		132	204	304	36	39	20
(3) Number of visits to give prenatal care	9	14	197		11		221	18	7	83
(4) Number of visits to explain and demonstrate infant hygiene	12	2	1,456		18	167	561	35	433	125

Laboratory examinations:										
Positive	39	144	218		795	56		179	607	106
Negative	35	211	181	3	1,917	245		594	2,064	310
Total	74	355	399	3	2,712	301		773	2,671	416
Immunization:										
(1) Number of complete antityphoid inoculations	56	321	28	1	471	14	601	789	483	
(2) Number of complete antismallpox inoculations		880	452	5	2,865	445	974	849	1,274	455
(3) Number of complete antipneumonia inoculations	2					4		177		
Antimalaria work	(2)	(2)	(3)	(2)	(2)	(1)	(1)	(2)	(2)	(1)
Number of persons treated for removal of hookworm infection	4	40			672	38		21	1	
Venereal disease prevention:										
(1) Number of prophylactic treatments								4	5	
(2) Number of curative treatments		677	5,961		230		3,040	3,919	3,698	211
Number of visits by health officer or his assistant:										
(1) To diagnose suspected cases infectious disease		93	109	17	80	217		157	412	152
(2) To impose quarantine measures	45	51	408	12	29			66	210	125
Number of cases quarantined	45	45	570	11	817	62		107	191	212
Sanitary privies installed:										
L. R. S	6	43	18			42	44	85	36	16
Concrete vaults							68			
Bucket and box	838			13		6	40	63	86	1
Pits	999				55	659	105	144	112	2
Total	1,843	43	18	13	55	707	257	292	234	19
Septic tanks installed										
Number of privies repaired so as again to be of sanitary construction	1,068	140	14		1,981	18	20	246	258	22
Number of new sewer connections	30				2	29		87	26	4
Number of new water connections	11				10	32		45	21	4
Number of wells improved	2		3				82	34		
Number of springs improved						4		8		
Number of public milk supplies radically improved	2	41			13		52		4	
Number of life extension examinations					12				314	

[1] None. [2] Considerable. Little.

Compilation of data, by counties, on cooperative demonstration work in rural sanitation in the fiscal year 1921—Continued.

Counties (or districts)	Muscogee, Ga.	Ottawa, Okla.	San Miguel, N. Mex.	Santa Fe, N. Mex.	Talladega, Ala.	Union, N. Mex.	Walker, Ala.	Walker, Ga.	10 Virginia counties.	Total.
Period of work in fiscal year 1921	July 1, 1920, to June 30, 1921.	July 1, 1920, to June 30, 1921.	Apr. 1 to June 30, 1921.	June 1 to June 30, 1921.	July 1, 1920, to June 30, 1921.	Apr. 1 to June 30, 1921.	July 1, 1920, to June 30, 1921.	July 1, 1920, to June 30, 1921.	July 1, 1920, to June 30, 1921.	
Expenditures:										
(*a*) Rural sanitation fund (P. H. S.)	$300.00	$909.81	$225.00	$100.00	$1,999.96	$248.22	$818.33	$1,457.50	$4,904.80	$31,460.82
(*b*) State					953.80				11,131.92	27,960.39
(*c*) County	23,282.50	4,066.39	2,096.06	595.54	6,457.00	2,556.60	4,961.62	3,907.83	13,275.65	147,139.37
(*d*) Municipalities	23,282.51									42,668.63
(*e*) Other agencies		4,359.08		226.40	1,057.58		830.00			42,834.38
Total	46,865.01	9,335.28	2,321.06	921.94	10,468.34	2,804.82	6,609.95	5,365.33	29,312.37	292,063.59
Number of lectures	10	142	64	18	74	31	94	62	413	2,356
Attendance at lectures	220	7,800	1,085	3,048	4,879	967	4,560	5,148	28,703	136,633
Pieces of literature distributed	5,117	3,775	550	960	3,662	225	6,719	5,536	33,358	212,599
Sanitary inspections:										
(1) Private homes	56,840	2,293	283		669	191	1,088	3,085	10,868	127,985
(2) Schools		110	37		11	4	67	48	419	2,169
(3) Churches					5		5	17		184
(4) Stores, markets, etc	2,790	741	96		207	14	215	380		22,014
Total	59,630	3,144	416		892	209	1,375	3,530	11,287	152,352
Special inspections:										
Food product places	651	645	75		179	3		87	237	7,702
Physical examination of school children:										
(1) Number examined	2,254	1,842	21		2,086	704	4,831	2,711		63,311
(2) Number found defective	1,203	1,577	18		1,498	462	2,639	1,260		41,507
Number of treatments induced for correction of physical defects in school children		275		43	24			112		6,241
Public-health nursing:										
(1) Number of visits to cases of communicable diseases	3,010	620	1	442	471	125	362			12,000
(2) Number of talks given to groups of persons	108	200	9	12	26	86	139			2,339
(3) Number of visits to give prenatal care	1,573	73	6	37		10	20			3,161
(4) Number of visits to explain and demonstrate infant hygiene	2,220	299	89	343	5	20	34			9,035

Laboratory examinations:										
Positive	390	25	24	.....	247	53	185	43	.....	4,510
Negative	786	48	9	.....	896	670	790	72	.....	15,516
Total	1,176	73	33	.....	1,083	723	975	115	.....	20,026
Immunization:										
(1) Number of complete antityphoid inoculations	817	1,815	.....	1	1,791	.....	2,890	293	.....	15,937
(2) Number of complete antismallpox inoculations	1,122	205	.....	.....	526	.....	2,167	583	.....	20,025
(3) Number of complete antipneumonia inoculations	.....	71	.....	.....	.....	.....	5	1	.....	268
Antimalaria work	(2)	(1)	(1)	(1)	(2)	(1)	(2)	(2)	(2)	.....
Number of persons treated for removal of hookworm infection	1	.....	.....	.....	8	.....	29	.....	.....	907
Venereal disease prevention:										
(1) Number of prophylactic treatments	.....	27	.....	.....	56	.....	.....	.....	.....	167
(2) Number of curative treatments	3,810	887	.....	21	3,445	.....	.....	.....	.....	27,850
Number of visits by health officer or his assistant:										
(1) To diagnose suspected cases infectious disease	504	84	146	123	407	75	118	144	.....	5,066
(2) To impose quarantine measures	935	97	57	412	178	85	164	35	.....	6,872
Number of cases quarantined	758	128	93	28	162	123	248	78	.....	8,334
Sanitary privies installed:										
L. R. S	.....	.....	.....	2	120	.....	19	71	213	840
Concrete vaults	.....	83	.....	.....	.....	.....	.....	2	28	430
Bucket and box	51	617	.....	.....	480	.....	861	50	631	4,991
Pits	.....	.....	4	61	15	6	149	4	1,650	5,529
Total	51	700	4	63	615	6	1,029	127	2,522	11,790
Septic tanks installed	.....	.....	.....	.....	.....	.....	.....	.....	646	753
Number of privies repaired so as again to be of sanitary construction	.....	122	115	284	20	7	656	81	.....	5,726
Number of new sewer connections	76	321	13	2	488	.....	67	290	406	2,244
Number of new water connections	106	500	3	.....	470	.....	116	289	60	2,047
Number of wells improved	35	15	.....	.....	19	.....	45	.....	172	571
Number of springs improved	23	.....	.....	.....	20	.....	21	2	48	150
Number of public milk supplies radically improved	11	70	.....	.....	4	1	.....	.....	.....	322
Number of life extension examinations	.....	.....	.....	6	92	.....	.....	.....	.....	554

[1] None. [2] Considerable. [3] Little.

Plan of Work.

The plan of work in the fiscal year 1921 was generally the same as that [4] carried out in the fiscal year 1920. This plan has been evolved in the course of field experience. It has stood the test of time under a wide range of local conditions. Its effectiveness, economy, and logic appear now to be definitely demonstrated.

From follow-up observations in the rural counties of which the Public Health Service, in cooperation with State and local health authorities, made complete sanitary surveys in the period 1914–1917, it was found, as a rule, in those in which local whole-time health service was maintained, after the survey, sanitation progressed; whereas in those in which no such service was provided, the sanitary improvements resulting from the educational effects of the survey retrogressed. Such observations indicated the advantage of distributing the rural sanitation demonstration work of the Public Health Service in communities in which it would help toward the establishment of local whole-time health service adequate to continue the sanitary work and so make the demonstrations lasting. This principle of procedure has been applied in most of the projects in which the cooperative work has been conducted during the last three fiscal years.

A whole-time health service is established in the geographical unit—a county or a group of townships or towns—decided upon by the agencies (including the State board of health and the local governmental authorities) to participate in the cooperative project. For the support of such service, the money from the different sources, including that from the rural sanitation funds of the Public Health Service, is pooled so as to make a budget for the year. Under this arrangement the rural sanitation work of the Public Health Service is carried out by a local health force and so made a part of a general program of rural health work indicated in the locality. Thus it is accomplished more economically and with more lasting effects from a demonstration standpoint than it could be if undertaken by a specialized force working a comparatively short time in the locality. The members of the local health forces, consisting of whole-time county or district health officers, whole-time sanitary inspectors, and whole-time health nurses, are appointed by the proper local authorities; but they must be acceptable to each of the cooperating agencies. The only ground upon which the interests of all the cooperating agencies can meet, is that of fitness of the personnel to render efficient services; and, with such expressed understanding, the local authorities, at times, may be relieved of local political embarrassment in making the appointments.

[4] Reprint No. 615 from Public Health Reports, Oct. 1, 1920.

The different branches of health work indicated in the locality are taken up in what appears to be the logical and most advantageous sequence. The local health officer, at the head of the demonstration unit, in determining sequence and methods of work, has, from time to time, the advantage of advice and counsel from broadly experienced representatives of the State board of health and the Public Health Service. Every salient branch of health work—including safeguarding of water and food supplies, sanitary excreta disposal, fly control, antimalarial measures, acute communicable-disease control, infant and maternity hygiene, school inspection, antituberculosis and antivenereal disease measures, industrial hygiene, etc.—is carried out in the demonstration projects. The economy of having carried out all such related activities under one local administrative direction rather than under multiple direction, as would be the case with numerous separate specialized health forces operating independently along the different lines of health work in the same locality, is readily apparent. Under this plan of unified local health service, overhead expenses and clerical work may be reduced to a minimum, so as to constitute but a small fraction of what they would be under a plan of uncoordinated multiple separate health activities in a community.

The plan of cooperative rural health work by the Public Health Service has been found to be adjustable to the differing governmental and other local conditions in the different States. In the Southern and Western States generally the county government is the unit of rural government with which, as a rule, the Public Health Service and the State board of health negotiate the cooperative arrangements. In the New England States, with the town as the unit of rural government, and with many of such towns having each a population (of less than 2,000) too small to support economically a whole-time town health service, the problem of adjustment appeared more difficult. It was, therefore, with particular interest that, upon the request of the State commissioner of health, negotiations were undertaken in the fiscal year 1921 to develop a cooperative rural health project in Massachusetts.

The Cape Cod Project.

In the autumn of 1920 representatives of the Public Health Service and of the State department of health, at a joint meeting of members of the boards of selectmen and the local boards of health of the 14 towns in Cape Cod, Mass., presented for consideration a proposition for the establishment of a system of whole-time health service in that part of the State. The proposition presented was for the towns to go into partnership for whole-time health service by pooling their appropriations for health work and having the same person serve

as health officer for each of the towns entering into the combination. The members of the local boards regarded the proposition favorably and agreed to present it at the next town meetings in their respective towns. At the town meetings held in the spring of 1921, 10 of the towns were authorized by a unanimous vote of the citizens assembled to enter into the combination. Thus these 10 towns were constituted a special sanitary district. A health officer was engaged for whole-time service in the district and was appointed as health officer of each of the towns in the group. As assistants on the district health force, a sanitary inspector and an officer clerk were engaged. A system to coordinate advantageously the work of several health nurses, engaged by civic organizations or by separate towns in the group, with the activities of the district health force was inaugurated. The budget for the support of the district health work for a period of 12 months was $7,600, of which $5,100 was appropriated by the 10 towns and $2,500 was allotted from the rural sanitation funds of the Public Health Service. The appropriations by the towns to obtain this whole-time health service exceeded but little the amounts expended by them in each of the several previous years for part-time, unsystematic, and comparatively ineffectual health work. The active work of the whole-time district health department on Cape Cod was begun in May, 1921, and at the end of the fiscal year was giving promise of highly gratifying success.

Special Demonstration Work in 10 Virginia Counties.

The special line of demonstration work in rural sanitation which was carried out in 11 counties in Virginia in the fiscal year 1920 was carried out in 10 counties [5] in that State in the fiscal year 1921. This special line of demonstration work has proved highly successful and has a wide range of applicability among counties in which effective health work, if begun at all, must be begun on a low-cost basis. The following excerpt from a report submitted to the Rural Sanitation Office by Surg. W. F. Draper presents the plan of progressive rural health work which is being carried forward in Virginia:

Among the 100 counties in Virginia are many which have never made provision for organized public health work of any kind and in which sentiment for such work is confined to a very few people. To secure from these counties appropriations of several thousands of dollars for the support of adequate, well-balanced health departments is an impossibility at the present time. The only way in which this can be accomplished is by introducing first the simplest and least expensive form of public health work which will be effective, and gradually adding to it as public interest and public sentiment develop.

The demonstrations of rural health work in Virginia are planned so as to enable any county to undertake at the start the one line of work which, for that particular county, will yield the greatest results in lives saved and sickness prevented for the money

[5] Bath, Charlotte, Chesterfield, Greensville, Lunenburg, Northumberland, Orange, Richmond, Roanoke, and Wythe.

which is available. As the work progresses, and as its value becomes apparent to the citizens of the county, appropriations may be increased so as to include the line of work which will yield the next greatest returns, and so in logical sequence, until the public health structure is completed. By this method of development the people are enabled to keep pace with the work, and are ready to approve and accept each additional step because of the merit and worth of those which have gone before. While such a process of development may extend over a period of years, it is permanent when completed.

Almost every stage in the development of county health work was in progress in Virginia at the end of the fiscal year 1921, as is shown by the following:

First stage—five counties.
County sanitary officer.
Appropriations—

United States Public Health Service	$300
State board of health	700
County	1,500
Total	2,500

In this stage may also be included 39 counties in which a public health nurse is employed alone by the county, either with or without State or Red Cross financial assistance.

Second stage—five counties.
County sanitary officer.
Public health nurse.
Appropriations—

United States Public Health Service	$300
State board of health	1,200
County (including extra governmental agencies)	3,500
Total	5,000

Third stage—five counties.[6]
County health officer.
Public health nurse.
Sanitary inspector.
Clerical assistant.
Appropriations—

United States Public Health Service	300
State board of health	2,500
International Health Board	2,500
County (including extra governmental agencies)	5,000
Total	9,300

Fourth stage—four counties.
County health officer.
Public health nurse.
Sanitary inspector.
Clerical assistant.
Appropriations—
$8,000 to $15,000, all derived from county sources.

[6] The Public Health Service is participating in three of these counties.

In the cooperative county health work in which the Public Health Service has participated during the fiscal year 1921, the appropriations have been derived as follows:

United States Public Health Service	$5,696.91
State board of health	13,727.44
Counties (including extra governmental agencies)	48,211.91
Total	67,538.26

The development of the first stage of health work in counties in which no public health activities were being conducted has constituted the greater part of the work of the Public Health Service in Virginia. At the beginning of the demonstrations in 1919, cooperative work of this character was established in 10 counties, the full number that could be undertaken with the Federal and State appropriations available for the purpose. During the first year the work was conducted on a $2,000 budget for each county, $1,000 being derived from the county and the remaining $1,000 being contributed by the State and the Public Health Service.

At the end of the first year, six of the counties provided for continuation a second year and appropriated $1,500 each instead of $1,000 in order that the salaries of the sanitary officers might be more in proportion to the services they had rendered. The State and Public Health Service allotments remained the same, making the county budgets $2,500 each.

Two of the 10 original counties appropriated $5,000 each in order that they might enter the third stage of work. The remaining two counties made no provision for continuation.

In 1920 four new counties were secured to fill the places of the counties which had advanced to a higher stage or which had discontinued, the demonstrations being conducted throughout the year in 10 counties as before.

During the second year, 5 of the 10 counties advanced to the second stage by employing a public health nurse in addition to the sanitary officer.

Up to July, 1921, three counties have completed their second year of work, and two of them have provided for continuation a third year upon the same basis as before. It is assured that practically all of the remaining counties will provide for continuation. A new county has been secured to fill the place of the one which discontinued the work, and other counties have signified their intentions of providing for the first stage of work in the event that a vacancy occurs.

One of the original counties which advanced to the third stage after the first year, has returned to the second stage for its third year.

The educational value resulting from the first stage of work and its success in demonstrating the benefits to be derived, are best shown by the action of the counties in providing for continuation from year to year or in advancing to higher stages.

General Progress in Rural Health Work.

It is gratifying to be able to report that, notwithstanding the general economic depression, substantial progress was made in the development of whole-time rural health service in the United States during the fiscal year. Ohio went to the head of the list of States for number of counties provided with whole-time health departments. Progress deserving especial mention continued in Virginia, North Carolina, Georgia, and Alabama, and was made in Missouri. Largely as a result of the demonstrations effected by the cooperative rural health work in Greene and Jasper Counties, Mo., the State Legislature of Missouri made an appropriation of $20,000 for cooperative rural

health work in the biennial period beginning July 1, 1921. Dubuque County, in Iowa, established a precedent for that State by creating a whole-time county health department.

In a number of the counties in which the Public Health Service was participating in rural health work during the year, the industrial depression was so acute as to necessitate radical reductions in county expenditures; but notwithstanding this fact, the appropriations from the county treasuries for the health work were continued—and in most instances on an increased scale. Some of these instances furnished striking evidence of the appreciation by the local citizens of the relative and the absolute value of the cooperative health work.

Though the progress in the development of whole-time local health service in our rural districts generally is slow, it now is being made on a basis of definitely established facts whose convincing logic eventually may be expected to cause an increase in its rate somewhat commensurate with the importance of the work. That something more than is now being done is necessary for the advancement of the work to a reasonable degree is clear. According to data collected by the Rural Sanitation Office from the State health departments, there were in the United States only 154 counties (over 50 per cent rural) which, as of January 1, 1921, were provided with local health service headed by whole-time county health officers. This means that less than 6 per cent of our rural communities are provided with local health service approaching adequacy for the protection of the men, women, and children against readily preventable health demotion, premature death, and economic disaster resulting from costly sickness. Such a situation is of grave importance to the individual citizen, to the local community, and to the whole Nation; it surely should be a matter of acute concern with our local, State, and National Governments. In the items for the promotion of our national welfare none appears more important than reasonably adequate procedure for the protection and the promotion of the health of our people.

Rural health work, on account of distances to be covered and other obvious factors, is relatively more expensive than urban health work. Rural health work protects not only the rural but also the urban population. In the United States rural health work has not made, and under existing conditions can not reasonably be expected to make, the progress that urban health work has made. In a critical period of war the defense or the loss of some of our largest cities might be determined by the factor of strength now lost in any one month from incapacity and death resulting from preventable disease in our rural population. Without assistance and stimulation from central agencies such as the State government and the Federal Government, it now seems clearly established that individual citizens and local

communities in our rural districts will not make the progress in the carrying out of health measures which is critically needed. Our National Government as yet has not done what appears to be its proper and proportionate part in assisting the States in the development of local rural health service. If the Federal Government has a right to cooperate with the States in any line of work, the indication is definite for it to do much more than it is and has been doing for the promotion of cooperative rural health work. This last statement appears amply justified by the results—recorded in this and previous reports—obtained with the small annual investments made by Congress within the last several years for the cooperative rural health work of the Public Health Service.

Results.

The cooperative projects in the fiscal year ending June 30, 1921, yielded results exceeding in value manyfold the cost in labor and money. Among the results indicated in the tabular statement, to which especial consideration may be given, are:

1. Public health lectures presenting the principles and details of sanitation to over 136,000 persons.

2. Over 152,000 sanitary inspections of premises, with plain discussion of findings with occupants of the properties.

3. Physical examination of over 63,000 school children, with notification of parents of defects found.

4. Six thousand two hundred and forty-one recorded treatments, effecting correction of incapacitating physical defects among school children, brought about by written notifications and follow-up visits to homes of the children.

5. Twelve thousand visits by health nurses to homes of cases of communicable disease to advise and show the afflicted households how to prevent the spread of the infections.

6. Three thousand one hundred and sixty-one visits by health nurses to prenatal cases to advise with and assist expectant mothers in carrying out hygienic and physiological measures making for healthy mothers and healthy babies.

7. Nine thousand and thirty-five home visits by health nurses to demonstrate hygienic measures for the protection of the health and lives of infants.

8. Fifteen thousand nine hundred and thirty-seven persons inoculated for the prevention of typhoid fever.

9. Twenty thousand and twenty-five persons vaccinated against smallpox, a disease which now should be obsolete in civilized communities and which can be made so by thorough vaccination.

10. Twenty-eight thousand and seventeen treatments to rid persons of venereal disease infection and prevent the spread of the infection.

11. Eight thousand, three hundred and thirty-four cases of dangerous communicable disease quarantined to prevent spread of infection in the local community, the State and throughout the country.

12. The installation of 11,790 sanitary privies and of 753 septic tanks with flush water-closets at homes previously provided with grossly insanitary privies or without toilets of any kind.

13. Five thousand, seven hundred and twenty-six privies repaired so as again to be of sanitary type and provide sanitary protection, restore confidence in the system, and maintain a demonstration of the important principles involved.

14. Two thousand, two hundred and forty-four homes connected for the first time with sanitary sewers.

15. Two thousand, seven hundred and sixty-eight homes provided with clean water supplies in place of contaminated water supplies.

16. Radical improvement of 322 public milk supplies, distributed to a considerable extent through the channels of interstate commerce, to prevent the spread, through that important and economical food, of such infections as those of typhoid fever, scarlet fever, diphtheria, tuberculosis, septic sore throat, and infant diarrhea.

17. Five hundred and fifty-four persons over 40 years of age examined and advised about their need to consult private physicians about methods to conserve their vital capital.

The range and the number of the results obtained indicate the comprehensiveness and the effectiveness of the work. The value of a human life saved can not be measured in dollars and cents; but if consideration be given only to the monetary loss from sickness which was prevented in these demonstration projects, the economy of this bnsiuess can not be questioned.

Reference was made in the report for the fiscal year 1920 to Madison County, Ala., as an example among the cooperative projects in which a radical reduction in death rate had been effected by the work at a cost of $66 per life saved. In the fiscal year 1921, the death rate in that county continued low—the total number of deaths reported in the county's population of 50,000 being about 350 less than that reported in each of the several fiscal years before the whole-time county health service was established.

Conclusion.

The demonstration rural health work of the Public Health Service has succeeded to such a degree that it now should be put on a cooperative basis so that any rural community in the United States ready to do its proper part might receive from the Federal Government due and logical assistance in the development and maintenance of reasonably adequate local health work.